



MOTEMS

THE CURRENT STATUS OF MOTEMS IMPLEMENTATION

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REGULATORY PROCESS

- ◆ APPROVED - CALIFORNIA STATE LANDS COMMISSION, AUGUST 17, 2004
- ◆ ADOPTED - CALIFORNIA BUILDING STANDARDS COMMISSION, JANUARY 19, 2005
- ◆ PUBLISHED - CALIFORNIA BUILDING STANDARDS CODE (TITLE 24, PART 2, VOL 1, CHAPTER 31F) AUGUST 6, 2005.
- ◆ EFFECTIVE FEBRUARY 6, 2006
- ◆ NEW EDITION SCHEDULED FOR LATE -2008



FACILITY CLASSIFICATIONS (E)

(INITIAL AUDIT DEADLINES)

- HIGH :** **>1200 Bbls at risk**
 (30 Months) DUE: AUGUST 6, 2008
- MEDIUM:** **<1200 Bbls at risk or**
 > 90 transfers/year
 (48 Months) DUE: FEBRUARY 6, 2010
- LOW:** **< 1200 Bbls at risk,**
 < 90 transfers/year
 < 30,000 DWT
 (60 Months) DUE: FEBRUARY 6, 2011



MOTEMS & AUDIT STATUS

- ◆ 10 “HIGH RISK” FACILITIES HAVE SUBMITTED THEIR AUDITS (3-10 VOLUMES EACH)
- ◆ NEW TERMINAL PROPOSED, BERTHS 408-409, PIER 400 (POLA) – USING MOTEMS
- ◆ CURSORY REVIEW OF SUBMITTED AUDITS
- ◆ WHERE DO WE GO FROM HERE?



WHAT'S REQUIRED FOR THE AUDIT? (MOTEMS Section 3102F.3.8)

**Background - Baseline inspection/drawings
may be required**

Inspection/testing data and report

Mooring/berthing analyses

Structural and seismic analyses

Geotechnical Analysis & Report



WHAT'S REQUIRED FOR THE AUDIT? (MOTEMS Section 3102F.3.8)

Pipeline Stress Analysis

MOT Fire Plan & Risk Analysis

Mechanical/Electrical Documentation

Photographs/sketches/drawings

Condition Assessment Ratings (CARs)

Remedial Action Priorities (RAPs)



AUDIT RATINGS

Inspection & Analyses

CONDITION ASSESSMENT RATINGS (CAR)

6 = GOOD - fit-for-purpose

5 = SATISFACTORY - fit-for-purpose

4 = FAIR - Marginal, capacity less than 15% degraded*

3 = POOR – Not fit-for-purpose*

2 = SERIOUS – Not fit-for-purpose*

1 = CRITICAL – Cease operations

*** May require repair/rehabilitation to remain operational**



COMPONENT REMEDIAL ACTION PRIORITIES (RAP)

- **P1 – Condition poses an immediate threat to public health, safety or the environment. Emergency action required***
- **P2 – Condition pose a potential threat to public health, safety and the environment – requires urgent action***
- **P3 – Upgrading required, no emergency or urgent action required**
- **P4 – Fit-for-purpose, do the repairs during normal maintenance intervals**
- **R - Recommended action for good engineering or maintenance practice, but not required by these standards**

*** Berthing System NOT fit-for-purpose.**



AUDIT REVIEW PROCESS

- ◆ AN INITIAL QUICK LOOK, NO MISSING DOCUMENTS OR OTHER GROSS INADEQUACY?
- ◆ A THOROUGH REVIEW, WITHIN MONTHS, EXCEPT FOR THE STRUCTURAL ANALYSIS/DESIGN
- ◆ A MEETING TO DISCUSS:

P1 – P4 RAPs (REMEDIAL ACTION PRIORITIES)

CAR 6 – CAR 1 (CONDITION ASSESSMENT RATINGS)

SCHEDULING OF REHABILITATION

ERRORS/MISTAKES IN THE AUDIT



AUDIT REVIEW PROCESS

- ◆ DRAFT OF QUESTIONS/COMMENTS PROVIDED TO THE OPERATOR AND CONSULTANTS.
- ◆ UPDATES TO EXECUTIVE SUMMARIES – AT A SPECIFIED TIME INTERVAL.
- ◆ POSSIBLE LIMITATIONS ON OPERATIONS
- ◆ CARS – CONDITION ASSESSMENT RATINGS INCLUDE STRUCTURAL EVALUATIONS, ABOVE AND BELOW THE WATER LINE – FIT-FOR-PURPOSE?
- ◆ RAPS – REMEDIAL ACTION PRIORITIES – SOME MAY HAVE BEEN FIXED BY THE TIME WE COMPLETE OUR INITIAL REVIEWS.



AUDIT RESULTS - RAPs & CARs

- ◆ **Non-Seismic RAPs/CARs** – downgrade ops manual to be consistent until rehabilitated.
- ◆ **Seismic RAPs/CARs** – Schedule rehabilitation, maintain operations. We will not review preliminary analyses of structures that are inadequate. Will review new configuration/design
- ◆ If seismic upgrade required, pipeline stress analysis will follow



SOME RECENT ISSUES

- LIQUEFACTION POTENTIAL – UNDER OR LANDWARD OF THE WHARF FACE
- FIRE HAZARD ASSESSMENT AND RISK ANALYSIS (SECTION 3108F.2.1) - INCOMPLETE
- RECORD KEEPING – ORIGINAL DRAWINGS, AS-BUILT?
- QUALITY ASSURANCE – AUDIT CHECKED?
- WHAT IF THE U/W INSPECTION REVEALS MAJOR PROBLEMS?



MOTEMS RECORDS

As-built conditions, modifications of structural components, electrical/mechanical components, engineering analyses, etc. shall be maintained in chronological order, indexed and readily accessible to the Division (MFD).

(MOTEMS 3102F.1.4 and 2 CCR Section 2320 (c) (2)).

Submit audit in hardcopy and electronic format and prepare a location to store everything, on-site PERMANENTLY!



QUALITY ASSURANCE

- Required on all MOTEMS audits, inspections, engineering analyses and design.
- Prior to submission to MFD
- Audits, inspections, analyses or evaluations of existing MOTs are subject to MFD review and approval

(MOTEMS Section 3101F.6.2)



MOTEMS IMPLEMENTATION (NON-AUDIT ACTIVITIES)

- **Larger vessels (or double hull) – Mooring analysis required**
- **Larger diameter pipelines or larger pump capacity – new P&IDs, stress analysis, increased hazards (different products)**
- **A mooring incident or vessel impact damage (post-event audit)**
- **Larger vessel arrival mass (DT) – berthing system OK?**
- **A new underwater inspection or analysis – new findings**



“SIGNIFICANT” INCIDENTS AND ACCIDENTS

- **Hard berthing, vessel impact, passing vessel incident, fire, earthquake, etc.**
- **Subject to MOTEMS “post-event inspection”**
- **Can be initiated by the operator or by MFD.**
- **Requires an “Action Plan” – similar to a MOTEMS audit.**

(MOTEMS 3102F.4)



MOTEMS UPDATES (LATE 2008)

- **POLA/POLB TSUNAMI STUDY**
- **SF BAY TSUNAMI STUDY**
- **POLA/POLB RESPONSE SPECTRA**
- **PASSING VESSEL FORCES AND MOTION**
- **OTHER UPDATES**



PLANNED REVISIONS MOTEMS 2009

- **COMBINATION OF INERTIAL AND KINEMATIC LOADING ON PILES**
- **LEVEL III EARTHQUAKE AND PERFORMANCE REQUIREMENT OF “NON-COLLAPSE”**
- **SIMPLIFIED, APPROXIMATE SOLUTION TO DETERMINE THE CAPACITY/DEMAND OF PILE SUPPORTED WHARVES/PIERS**



What if you find a major problem?

During the audit or pre-audit phase, what if you discover a CAR 1-3 or a RAP 1 or 2?

DON'T WAIT FOR THE AUDIT PROCESS

**DON'T ANALYZE A PROBLEM IF NOT REQUIRED
(e.g. perform structural analysis on the
rehabilitated configuration, not on the existing)**

**Not properly addressing, diagnosing or analyzing a
problem could prove very costly.**



MOTEMS – PREVENTION FIRST 2008

- ◆ **ENJOY THE ENGINEERING TRACK 2A – 2E**
- ◆ **MFD ENGINEERS WILL DO THEIR BEST TO HOST AND FACILITATE THESE SESSIONS.**
- ◆ **SPECIAL THANKS TO THE MFD ENGINEERING STAFF:**
**AVI NAFDAY, HOSNY HAKIM, MIKE EDWARDS,
KENDRA OLIVER AND JOHN FRECKMAN**



WILL BE THINKING OF ALL OF YOU, WHILE SIPPING CAPPUCINO AT THE PIAZZA SAN MARCOS, VENECIA.

◆ **CHAO AND MILLE GRATZIE FOR ATTENDING.**





MOTEMS AND AUDIT MANUAL AVAILABLE

CSLC Website: www.slc.ca.gov

[http://www.slc.ca.gov/Division_Pages/MFD/
MOTEMS/MOTEMS_Home_Page.html](http://www.slc.ca.gov/Division_Pages/MFD/MOTEMS/MOTEMS_Home_Page.html)